

7-21-2000

The Economic Impact of Health Services in Muskegon County

George A. Erickcek

W.E. Upjohn Institute for Employment Research, erickcek@upjohn.org

Citation

Erickcek, George A. 2000. "The Economic Impact of Health Services in Muskegon County." Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

<https://research.upjohn.org/reports/113>

This title is brought to you by the Upjohn Institute. For more information, please contact repository@upjohn.org.

**The Economic Impact
of Health Services
on Muskegon County**

July 21, 2000

by

George A. Erickcek
W. E. Upjohn Institute for Employment Research
300 S. Westnedge Ave.
Kalamazoo, MI 49007

The Economic Impact of Health Services on Muskegon County

by

George A. Erickcek

Executive Summary

Mercy General Health Partners and Hackley Health provide quality health services to Muskegon area residents and are major employers in Muskegon County. Economically, their activities support hundreds of additional jobs in Muskegon County, as individuals from the county, as well as surrounding counties, seek and receive health care services from the two medical providers. Furthermore, the provision of tertiary health care services enhances the county's quality of life and its attractiveness for both residential and economic growth.

The purpose of this study is to:

1. Estimate the economic presence of Mercy General Health Partners.
2. Compare the current level of health care services currently available in Muskegon County with those offered in 25 similar-sized communities.
3. Estimate the economic impact of alternative health services scenarios which are feasible if an out-of-county regional provider, Spectrum Health in Grand Rapids, takes a greater role in providing tertiary health care services to Muskegon area residents.
4. Estimate the economic impact of a new collaborative effort by Mercy General and Hackley Health that would bring new medical services to the Muskegon area.

The major findings of this report are:

- The total economic presence of Mercy General Health Partners is large. A total of 2,607 individuals are employed earning \$80.9 million in wages and salaries countywide due to the presence of Mercy General Health Partners.
- The current level of service provided by Muskegon's two health care providers, when compared to those in 25 similar-sized communities, offers more complete services in key health care areas. Unlike residents in more than 50 percent of the comparison communities, Muskegon residents have ready access to angioplasty surgery, open heart surgery and SPECT imaging.

- The current level of health service offered in Muskegon County is lacking in several areas, however, when compared to the 25 similar communities. Residents in two-thirds of the comparison communities have ready access to an Extracorporeal Shock Wave Lithotripter (ESWL) for the treatment of kidney and other stones, while Muskegon County residents must travel outside the county. In addition, 37.8 percent of the comparison hospitals offer a certified trauma center, while neither Mercy nor Hackley do.
- Economic impact of the proposed affiliation of Hackley and Spectrum is clearly unknown; however, it is possible that one or more of the current tertiary programs being offered in the county may be reduced or eliminated. As show in Table 10 in the report, the economic impact of the closure of all of the identified threatened procedures could mean the loss of more than 179 jobs countywide.
- If the level of medical services being offered in Muskegon is reduced, it is feasible that both Mercy General and Hackley Health will lose potential market share in the region's fastest growing areas, in particular Ottawa County. In 1998 Ottawa County residents accounted for nearly 8 percent of Mercy General's in-patient care, up from 7.3 percent in 1996, which represented a 14.2 percent increase in the number of patients. It is possible that with a decrease in the level of service being offered in Muskegon County, Mercy would be unable to increase the number of Ottawa County in-patients from its 1998 level for the next 3 years. If this proves to be the case, then in 2003 the hospital's employment would be 48 employees lower and the county's total employment would be 82 workers lower than it would be otherwise. Similar employment reduction would be expected at Hackley Health, as well.
- With the collaboration of the county's two medical providers, it is reasonable that the following services, which are available to many of the comparison communities, could be provided within Muskegon County: neonatal ICU and high risk OB, ESWL, and certified trauma center. The provision of these medical services would generate a total of 50 jobs in the county.

It is important to note that this report does not address whether there would be any resulting cost savings with the affiliation of Hackley and Spectrum. Nor does the study attempt to estimate the impact of the area's quality of life of area's residents if the level of services currently offered in Muskegon County by Mercy General and Hackley Health declines. Instead, it provides the potential negative economic impact of the loss of specific medical procedures that have been identified as being threatened by the possible affiliation of Hackley Health and Spectrum Health in Grand Rapids, as well as the positive economic impacts that are possible through collaboration between the two county health care providers.

Economic Presence of Mercy General Health Partners

The *direct economic presence* of Mercy General Health Partners (MGHP) as measured by employment is shown in Table 1. Currently, employment at MGHP and Amicare totals 1,938 and its annual payroll reaches \$57.1 million (Table 2).

In addition to its direct economic presence, MGHP activities support hundreds of additional county workers, who are employed in health and non-health sectors, such as retail, finance, and business services. The economic livelihood of these individuals depends upon either serving the consumer needs of MGHP employees or providing goods and services directly to the health care provider. Moreover, the second and third round effects, such as individuals who provide consumer services to employees of the hospital's local suppliers, are included in these estimates.

In total, MGHP activities support 669 workers in Muskegon County, in addition to its own existing workforce. Every 10 MGHP workers support 3 additional individuals in the county. In terms of wage and salary, MGHP's 1999 payroll of \$57.1 million generated an additional \$23.8 million in payroll in firms providing services directly to MGHP or to its workers. Every \$1 in payroll at MGHP supports another 42 cents in payroll throughout the county. Although it is not calculated in this study, Hackley Health has a similar economic presence in Muskegon County.

Direct Employment	1938
Indirect Employment	669
Manufacturing	-8
Non-manufacturing	647
Construction	125
Trans & Public Util.	23
Fin., Ins. & Real Estate	47
Retail	252
Wholesales	28
Services	165
Agriculture	8
Government	29
Total	2,607
Employment Multiplier	1.3
<i>Every 10 employees at Mercy support another 3 workers countywide.</i>	
W.E. Upjohn Institute	

Table 2		
Economic presence of Mercy General in Muskegon County		
Wage and Salaries		
	\$million	
Direct:	\$57.099	
Indirect	\$23.799	
Manufacturing	\$3.635	
Construction	\$3.557	
Trans. & Public Utilities	\$1.336	
Finance, Insurance, Real Estate	\$0.773	
Retail	\$3.964	
Wholesale	\$1.442	
Service	\$5.461	
Agricultural services	\$0.108	
Government	\$3.523	
Total	\$80.898	
Earnings multiplier	1.42	
<i>Every \$1 in payroll generates an additional \$0.42 in payroll countywide.</i>		
W.E. Upjohn Institute		

MGHP's economic presence (or that of Hackley Health) is not the same as its economic impact, however. The *economic impact* of the two health care providers is a more complex concept for it is a measure of the medical providers' *net contribution* to the county's economy. Nearly 80 percent of MGHP in-house patients are Muskegon County residents. The same holds true for Hackley Health. It is very likely that if MGHP simply disappeared, many of these county patients would be served by either an expanded Hackley Health facility or a new medical facility. The same, of course, holds true for Hackley Health. On the other hand, many of MGHP's and Hackley Health's patients who live outside the county would likely seek medical services elsewhere, and this would be a net loss to the Muskegon County economy.

The immediate issue at hand is to estimate the economic impact of the following two separate growth scenarios.

1. The potential loss of medical procedures and services if Spectrum Health in Grand Rapids established a greater presence in Muskegon due to its affiliation with Hackley Health.
2. The potential addition of medical procedures and services in Muskegon County due to a collaboration between Hackley Health and Mercy General.

To obtain a better understanding of what both of these alternative scenarios hold, it is valuable to conduct a study of comparable communities. As shown in the next section, Muskegon County residents enjoy access to several medical procedures that are not available in other communities. These procedures may be threatened because the comparison analysis suggests that market areas the size of Muskegon County, on average, are not sufficient to support

them. On the other hand, the comparison analysis reveals several medical procedures that currently are not being offered by the county's two medical facilities. These procedures could be offered to county residents through the collaboration of Hackley Health and Mercy General.

Comparison Analysis

In this section, the level of health care services available in Muskegon County are compared to those in 25 similar-sized urbanized areas in the U.S. This analysis shows that residents in Muskegon County enjoy a high level of medical services when compared to residents of similar-sized communities. The following cities are included in the comparison group:

Altoona, PA*	Greeley, CO	Lima, OH*	Racine, WI*
Battle Creek, MI	Houma, LA*	Mansfield, OH	Richland, WA
Bellingham, WA	Jackson, MI*	Monroe, LA*	Rocky Mount, NC
Burlington, VT	Jamestown, NY	Myrtle Beach, SC	Terre Haute, IN*
College Station, TX	Joplin, MO*	Normal, IL	Weirton, WV
Elkhart, IN	Las Cruces, NM	Parkersburg, WV*	Wheeling, WV*
			Wichita Falls, TX

*Communities with two or more hospitals.

In selecting the above metropolitan areas, the following criteria were used.

- The hospital(s) serving the community had to provide a full set of statistics in the American Hospital Association, *1999 Hospital Guide* - Unfortunately, this proved to be a restrictive requirement. Hospitals in many communities of similar size and composition as Muskegon did not complete the AHA survey.
- California communities were excluded due to the state's unique medical insurance laws.
- Florida communities were excluded due the large presence of retirees.
- Communities with large university and/or medical schools were excluded.
- The areas had to be independent communities and not suburban communities of a larger metropolitan area. (Although Muskegon is a part of the four-county Grand Rapids-Muskegon-Holland MSA, it can be considered an independent community economically).
- The communities had to be of similar size to Muskegon County.

As can be seen in Table 3, the average metropolitan population of the 25 comparison communities was 168,053 in 1998, which was only 0.9 percent larger than Muskegon County. The average population of the central city is substantially larger in the comparison communities than the City of Muskegon. This reflects the fact that the Muskegon urbanized area is divided among three large cities: Muskegon, Norton Shores, and Muskegon Heights, unlike most communities that have a single core city.

Table 3
General Characteristics of
Comparison Communities and Hospitals

Community	Muskegon		Comparison Cities Avg.
Metro/County 1999 Population	166,748		168,053
Central City	39,017		49,108
% of County Pop. over 65 yrs	13.1%		12.5%
Hospital Statistics- per hospital			
Number of Beds	188	Mercy	250
	181	Hackley	
No. of Admissions	9,594	Mercy	9,907
	9,125	Hackley	
Admissions per 1,000 population	58	Mercy	60.6
	55	Hackley	
Outpatient Services*	183,171	Mercy	157,902
	N.A.	Hackley	
Births	1,105	Mercy	1,150
	1,241	Hackley	
Personnel	1,442	Mercy	1,213
	1,094	Hackley	

*Mercy General's large network of off-site doctor practices accounts for its high number of outpatient services.

N.A. = Not available

Source: American Hospital Association, 1999

Mercy General and Hackley Health have fewer beds than the average hospital in the sample and a slightly fewer number of admissions; however, Mercy General performs a much higher-than-average number of outpatient procedures because of its large network of doctor practices. Employment levels at the two Muskegon hospitals straddle the average for the comparison group.

Table 4 compares the Accreditations and Approvals earned by the two Muskegon hospitals and the percentage of all hospitals in the comparison communities that have also earned these accreditations and approvals. The level of accreditation and approval of the two Muskegon hospitals is very similar to those in the comparison communities. Neither of the Muskegon hospitals is affiliated with a medical school nor approved for residency training by the Accreditation Council for Graduate Medical Education. Mercy General, however, is approved for both residency and internships by the American Osteopathic Association and is affiliated with Michigan State University's College of Osteopathic Medicine.

Table 4
ACCREDITATIONS AND APPROVALS

	Mercy General	Hackley Health	Percent of Comparison Hospitals
Accreditation by the Joint Commission On Accreditation of Health Org.	YES	YES	91.9%
Cancer Program Approved by American. College. Of Surgeons	YES	YES	62.2%
Approved for Residency Training by Accred. Council for Grad. Med. Ed.	NO	NO	29.7%
Medical School Affiliation	YES*	NO	27.0%
Hospital-controlled Professional Nursing School	NO	NO	2.7%
Member of Council of Teaching Hos. of the Assn.of Amer. Med. Colleges	NO	NO	5.4%
Participating in Blue Cross and Blue Shield Assn.	YES	YES	89.2%
Certified for Participation in Medicare	YES	YES	94.6%
Accreditation by American Osteopathic Assn.	YES	NO	2.7%
Internship Approved by American Osteopathic Assn.	YES	NO	2.7%
Residency Approved by American Osteopathic Assn.	YES	NO	5.4%
*MSU College of Osteopathic Medicine			
Source: 1999 AHA Guide			

Table 5 compares the two Muskegon hospitals to those in the comparison group in regards to medical procedures and services. A couple of findings are worth highlighting:

- Two-thirds of the comparison communities (67.6 percent) have access to an Extracorporeal Shock Wave Lithotripter (ESWL); whereas neither, of the Muskegon hospitals has this device for the treatment of stones in the kidney or ureter.
- 37.8 percent of the comparison hospitals offer a certified trauma center; whereas, one is not available in Muskegon.
- Slightly more than one-third of the comparison communities (35.1 percent) have access to Neonatal Intensive Care Services; whereas, the residents of Muskegon do not.
- Residents in more than 50 percent of the comparison communities do not share the access to Angioplasty Surgery, Open Heart Surgery, or SPECT imaging that Muskegon residents have.
- Mercy General provides Angioplasty Surgery, while Hackley does not. Hackley, however, is the sole provider of Radiation Therapy.

**TABLE 5
MEDICAL PROCEDURES AND SERVICES**

Procedures and Services	Mercy General	Hackley Health	Percent of Comparison Hospitals
Angioplasty	YES	NO	48.6%
Arthritis Treatment Ctr	NO	NO	10.8%
Birthing Room	YES	YES	86.5%
Breast Cancer screening	YES	YES	97.3%
Burn Unit	NO	NO	5.4%
Cardiac Catheterization Lab	YES	YES	78.4%
Cardiac Intensive Care Serv.	YES	YES	56.8%
Case Management	YES	YES	86.5%
CT scanner	YES	YES	97.3%
Diagnostic radioisotope facility	YES	YES	86.5%
Emergency Department	YES	YES	97.3%
Extracorporeal Shock Wave Lithotripter (ESWL)	NO	NO	67.6%
Magnetic Resonance Imaging (MRI)	YES	YES	91.9%
Medical Surgical Intensive Care Services	YES	YES	89.2%
Neonatal Intensive Care Services	NO	NO	35.1%
Obstetrics Services	YES	YES	91.9%
Oncology Services	YES	YES	86.5%
Open Heart Surgery	YES	NO	48.6%
Outpatient Surgery	YES	YES	97.3%
Pediatric Intensive Care Services	NO	NO	16.2%
Physical Rehabilitation Inpatient Services	YES	YES	59.5%
Physical Rehabilitation Outpatient Services	YES	YES	89.2%
Positron Emission Tomography Scanner (PET)	NO	NO	13.5%
Primary Care Department	YES	YES	56.8%
Radiation Therapy	NO	YES	70.3%
Single Photon Emission Computerized Tomography (SPECT)	YES	YES	45.9%
Transplant Services	NO	NO	5.4%
Trauma Center (Certified)	NO	NO	37.8%
Ultrasound	YES	YES	97.3%
Urgent Care Services	YES	YES	59.5%

Source: 1999 AHA Guide

As shown in Table 6, Muskegon County residents enjoy, on average, the same level of community health services from the two hospitals as do the residents in the comparison communities. It is important to note that while Mercy General and Hackley provide many of the same community services, Hackley Health is the provider of most all psychiatric services for the Muskegon area as shown in Table 7. Finally, Table 8 shows the other medical services, not elsewhere classified, that are provided in the Muskegon area and in the comparison communities.

**TABLE 6
COMMUNITY SERVICES**

	Mercy General	Hackley Health	Percent of Comparison Hospitals
Adult Day Care Program	NO	NO	10.8%
Alcoholism -inpatient	NO	NO	40.5%
Alcoholism -outpatient	NO	YES	56.8%
Children Wellness program	NO	YES	37.8%
Community Health Reporting	YES	YES	73.0%
Community Health Status Assessment	YES	YES	81.1%
Community Health status based service	YES	YES	81.1%
Community outreach	YES	YES	73.0%
Crisis prevention	NO	NO	35.1%
Geriatric Services	YES	YES	51.4%
Health Facility Transportation	NO	YES	37.8%
Health Fair	YES	NO	78.4%
Health Information Center	YES	YES	62.2%
Health Screening	YES	YES	75.7%
Home Health Services	YES	YES	73.0%
Hospice*	NO	NO	67.6%
Meals on Wheels	NO	NO	16.2%
Nutrition Programs	YES	YES	78.4%
Patient Education Center	YES	YES	67.6%
Reproductive Health Services	NO	NO	16.2%
Social Work Services	YES	YES	94.6%
Support Groups	YES	YES	70.3%
Teen Outreach Services	NO	NO	18.9%
Women's Health Center/Services	YES	NO	62.2%

*Services provided by a community-based organization.

Source: 1999 AHA Guide

**Table 7
PSYCHIATRIC SERVICES**

	Mercy General	Hackley Health	Percent of Comparison Hospitals
Psychiatric Acute inpatient Services	NO	YES	70.3%
Psychiatric Child Adolescent Services	NO	YES	56.8%
Psychiatric Consultation-liaison Services	NO	YES	56.8%
Psychiatric Education Services	NO	YES	59.5%
Psychiatric Emergency Services	NO	YES	67.6%
Psychiatric Geriatric Services	NO	YES	62.2%
Psychiatric Outpatient Services	YES	YES	62.2%
Psychiatric Partial Hospitalization	NO	YES	64.9%

Source: 1999 AHA Guide

**TABLE 8
OTHER SERVICES**

	Mercy General	Hackley Health	Percent of Comparison Hospitals
Assisted Living	NO	NO	2.7%
Dental Services	NO	YES	32.4%
Fitness Center	YES	YES	43.2%
Freestanding Outpatient Care Center	NO	NO	54.1%
HIV-AIDS Services*	NO	NO	62.2%
Hospital-based Outpatient Care Center - ξ	YES	YES	70.3%
Occupational Health Services	YES	YES	94.6%
Patient Representative Services	YES	YES	75.7%
Retirement Home	NO	NO	0.0%
Skilled Nursing or Other Long-Term Care	YES	NO	64.9%
Sports Medicine	YES	YES	56.8%
Volunteer Services Department	YES	YES	86.5%
*Services provided by the County's Public Health Department			
Source: 1999 AHA Guide			

Few, if any, deficiencies in the Muskegon area are detected through this comparison analysis. It is important to note that in Muskegon both HIV-AIDs health services and Hospice services are community-based and provided to area residents outside of the area's two hospitals. It is fair to say that the residents of Muskegon currently enjoy the same level of medical care, if not a slightly better level, as residents in the comparison communities.

Economic Impact of the Restructuring in the Delivery of Health Care in Muskegon County

A. The loss of services due to an increased role of a regional health care provider (Spectrum Health)

In determining the economic impact of the possible restructuring of health care in the county due to the increased presence of a regional provider, the challenge is to identify which of the current medical procedures and services would be lost to Muskegon County residents. Table 9 lists the threatened procedures that could be lost in the Muskegon County with the proposed Hackley-Spectrum affiliation. *It is important to state that the true impact of the proposed affiliation remains unknown; it is the purpose of this study to provide reasonable estimates on possible economic impacts of the action.*

Two factors that suggest that client services may be adversely affected by the affiliation include

- Potential new insurance policies which may create a disincentive for being treated locally.
- If patients are redirected to Spectrum facilities in Grand Rapids, it is possible that the loss of patient flow at Mercy General could negatively affect its heart and related programs.

Table 9
Threatened Procedures
Potential Clinical Services Lost in Muskegon
with a Regional Competitor in the Market

Open Heart

	Personnel	Annual Salary	Total wage
Surgical staff	9	\$39,500	\$355,500
Perfusionist	3	\$78,000	\$234,000
Doctors	4	\$345,000	\$1,380,000
Office staff	16	\$24,000	\$384,000
Registered Nurses	15	\$45,000	\$675,000
Total	47		\$3,028,500

Invasive Cardiology Procedures

	Personnel	Annual Salary	Total wage
Cardologic Doctors	4	\$398,000	\$1,592,000
Office Staff	16	\$24,000	\$384,000
Cath. Lab.	10	\$36,000	\$360,000
Registered Nurses	6	\$45,000	\$270,000
Total	36		\$2,606,000

Neurosurgery

	Personnel	Annual Salary	Total wage
Physician	1	\$413,000	\$413,000
Physician Assistant	1	\$56,500	\$56,500
Office Staff	4	\$24,000	\$96,000
Registered Nurses	3	\$45,000	\$135,000
Total	9		\$700,500

Pulmonology

	Personnel	Annual Salary	Total wage
Physician	1	\$195,000	\$195,000
Office Staff	4	\$24,000	\$96,000
Total	5		\$291,000

Intensive Orthopaedics

	Personnel	Annual Salary	Total wage
Physician	1	\$345,000	\$345,000
Office Staff	4	\$24,000	\$96,000
Total	5		\$441,000

Peripheral Vascular

	Personnel	Annual Salary	Total wage
Physician	1	\$345,000	\$345,000
Office staff	4	\$24,000	\$96,000
Technologists	2	\$36,000	\$72,000
Total	7		\$513,000

Source: Physician salaries based on MGMA Midwest Median Compensation
 Non-physician salaries based on MGHP Midpoint Median Compensation
 Personnel estimates made by the Study Steering Committee

Moreover, critical care patients tend to require the services of medical specialists across several medical fields. For example, if the volume of critical care patients for open heart surgery declines, this could lower the level of need for related medical specialists.

The economic loss to the county, however, would be greater than these numbers suggest. The economic impact of the loss of these jobs would ripple through all sectors of the county's economy. In estimating the economic impact, we used the economic model of Muskegon County maintained at the W.E. Upjohn Institute which is specially designed to measure the economic impact of changes in public and private activities. The model was created by Regional Economic Models Incorporated (REMI) in Amherst, Massachusetts. The model is, in fact, three separate models that are integrated into one. First, its input-output component allows for the estimation of the inter-industry linkages in the county.

For example, through the input-output model, we estimate the impact of the lost physicians on retail employment throughout the county. It is due to this component of the model that we are able to use industry-specific employment and income multipliers to measure inter-industry impact in contrast to some analyses that use only one multiplier.

As shown in Table 10, a total of 179 jobs would be lost in Muskegon County if due to the restructuring, all of the listed medical procedures were eliminated in the county. The total impact on the county's wage and salary would be \$9.4 million.

	Direct Employment	Employment	Total Impact Wage & Salary (\$Thous)
Open Heart	47	75	\$3,749
Invasive Cardiology Procedures	36	60	\$3,199
Neurosurgery	9	15	\$869
Pulmonology	5	8	\$363
Intensive Orthopaedics	5	9	\$548
Peripheral Vascular	7	12	\$631
Total	109	179	\$9,359

An alternative way of assessing the negative economic impact of fewer medical procedures being conducted in Muskegon County is by estimating the economic impact of the county's health care providers losing market share. As shown in Table 11, Mercy General and Hackley Health each captured between 9 and 10 percent of the health care market in the seven-county region of Kent, Lake, Mason, Muskegon, Newaygo, Oceana and Ottawa in 1998.

Table 11
Market share of the 10 major medical providers
in the greater Muskegon area

1998		
<u>Hospital Name</u>	<u>Patients</u>	<u>% Of Total Patients</u>
Spectrum Health Systems	43,841	40.3%
St. Mary's Health Services	12,614	11.6%
<i>Mercy General Health Partners</i>	10,628	9.8%
Hackley Hospital	10,142	9.3%
Holland Community Hosp	7,768	7.1%
Metropolitan Hospital	7,559	7.0%
Memorial Med Cntr - W MI	3,102	2.9%
North Ottawa Community Hosp	2,948	2.7%
Gerber Memorial Hlth Svc	2,710	2.5%
Zeeland Community Hosp	1,993	1.8%
10 Hospitals Total	103,305	95.0%
Grand Total of Patients	108,731	100.0%

Greater Muskegon area includes: Kent, Lake, Mason, Muskegon, Newaygo Oceana, Ottawa

Of the seven counties in the greater Muskegon regional market, Ottawa County has experienced the strongest population growth. From 1996 to 1998, its population grew at a 2.1 percent annual rate, which was nearly double that of the region as a whole (Table 12). Ottawa County patients account for nearly 8 percent of all Mercy General in-house patients and has posted the strongest percentage growth in patients among the seven counties. The ratio of Mercy in-patients to Ottawa County population has grown from 3.43 per 1000 to 3.76 per 1000 in population between 1996 to 1998.

If the level of medical services being offered in Muskegon is reduced, it is feasible that both Mercy General and Hackley Health will lose market share in Ottawa County. It is possible that with a decrease in the level of service being offered in Muskegon County, Mercy would be unable to increase the number of Ottawa County in-patients from its 1998 level for the next 3 years. If this proves to be the case, then in 2003, the hospital's employment would be 48 employees lower and the county's total employment would be 82 workers lower than it would be otherwise. Similar employment reduction would be expected at Hackley Health, as well.

TABLE 12
Changes in Demand and Demographics.
Mercy General Health Partners

<u>County</u>	1996	1998	% Change
	Inpatients	Inpatients	
KENT	201	167	-16.9%
LAKE	27	32	18.5%
MASON	232	251	8.2%
MUSKEGON	7,987	8,482	6.2%
NEWAYGO	481	457	-5.0%
OCEANA	401	396	-1.2%
OTTAWA	738	843	14.2%
TOTAL	10,067	10,628	5.6%
	<u>County Population Changes</u>		
	<u>1996</u>	<u>1998</u>	<u>% Avg Ann Chg</u>
KENT	536,537	545,166	0.8%
LAKE	9,822	10,475	3.3%
MASON	27,657	27,950	0.5%
MUSKEGON	164,806	166,748	0.6%
NEWAYGO	44,285	45,784	1.7%
OCEANA	24,293	24,833	1.1%
OTTAWA	215,379	224,357	2.1%
TOTAL	1,022,779	1,045,313	1.1%
	<u>Mercy Patients per 1000 of Population</u>		
	<u>1996</u>	<u>1998</u>	<u>% Change</u>
KENT	0.37	0.31	-18.2%
LAKE	2.75	3.05	11.1%
MASON	8.39	8.98	7.1%
MUSKEGON	48.46	50.87	5.0%
NEWAYGO	10.86	9.98	-8.1%
OCEANA	16.51	15.95	-3.4%
OTTAWA	3.43	3.76	9.7%
TOTAL	9.84	10.17	3.3%

The Potential Positive Economic Impact of Collaboration.

The comparison analysis also reveals several key medical procedures that are not currently available in Muskegon County which have the potential of being supported by the Muskegon area. If the two medical facilities could collaborate, it could be feasible for them to offer neonatal ICU and high risk OB, a certified trauma center and ESWL Litotripsy. If successful, this collaboration between Mercy General and Hackley Health would create 39 positions (Table 13) directly which, in turn would generate 22 other jobs in Muskegon County. Hence, in total the county's economy would be enhanced by 61 new jobs and an increase of \$3.2 million in wages and salary (Table 14).

Table 13
New Services and Procedures
that Could Be Offered in Muskegon with
the Collaboration of County Health Care Providers.

Neonatal ICU & High Risk OB

	Personnel	Annual Salary	Total wage
Registered Nurses	9	\$45,000	\$405,000
Neonatalogist	1	\$200,000	\$200,000
Respiratory Therapist	5	\$36,000	\$180,000
Health Unit Coordinator	3	\$25,000	\$75,000
Perinatalogist	1	\$200,000	\$200,000
Office Staff	7	\$24,000	\$168,000
Total	26		\$1,228,000

Certified Trauma Center

	Personnel	Annual Salary	Total wage
Anesthesiologist	1	\$235,000	\$235,000
Neurosurgeon	1	\$413,000	\$413,000
Office Staff	4	\$24,000	\$96,000
Total	6		\$744,000

ESWL Lithotripsy

	Personnel	Annual Salary	Total wage
Physician	1	\$225,000	\$225,000
Health technicians	2	\$30,000	\$60,000
Office Staff	4	\$24,000	\$96,000
Total	7		\$381,000

Source: Physician salaries based on MGMA Midwest Median Compensation
 Non-physician salaries based on MGHP Midpoint Median Compensation
 Personnel estimates made by the Study Steering Committee

Table 14
Economic Impact of Potential New Services
Made Possible Through Collaboration

	Direct Employment	Total Impact Employment	Total Impact Wage & Salary
Neonatal ICU & High Risk OB	26	38	\$1,747,000
Certified Trauma Center	6	12	\$924,100
ESWL Lithotripsy	7	11	\$524,300
Total	39	61	\$3,195,400

Conclusions

Mercy General Health Partners directly employs 1,938 persons in Muskegon County and generates a total payroll of \$57.1 million. In total, Mercy General supports 2,607 jobs which generate \$80.9 million dollars in total wages and salaries in Muskegon County. While this cannot be interpreted as its economic impact on the county, it does indicate its strong economic presence.

The future of medical care delivery in Muskegon County is unclear. Under the worst case scenario, it is possible that due to Spectrum's potential market penetration as a result of its recent affiliation with Hackley Health, employment in Muskegon County could decline as much as 179 workers and total wage and salary income could fall by \$9.4 million. On the other hand, a new collaboration effort on the part of Hackley Health and Mercy General would have the potential of retaining the above number of jobs and adding 61 more in the county.